

II. Drawings

Responsive to the objection to the drawings under 37 CFR 1.83(a) that “the detachable half shaft assembly being detached from the shaft bell” be shown, Applicants have proposed an amendment to the drawings. For clarification purposes, the dashed line underlying the shaft bell 14 has been amended to a solid line to more clearly distinguish between the detachable half shaft assembly 12 and the shaft bell 14. As amended, the drawing shows that the detachable half shaft assembly and the shaft bell are not integral elements, but rather separate components analogous to the relationship between the detachable half shaft assembly 12 and the disc rotor 16.

Responsive to the objection to the drawings under 37 CFR 1.83(a) that the drawings show the inboard and outboard interfaces having a “polygon interface,” as set forth in claims 5-6 and 12-15, Applicants have cancelled claims 5-6 and 12-15. Accordingly, the objection is now moot and should be withdrawn.

Responsive the objection to the drawings under 37 CFR 1.84(p)(5) because they do not include reference numerals 62 and 142, Applicants have proposed an amendment to the drawings to show reference numerals 62 and 142. Support for the amendment can be found in paragraphs [0020], [0021], and [0026] of the specification.

Responsive to the objection to the drawings under 37 CFR 1.84(p)(5) because they included characters not mentioned in the description, Applicants have proposed an amendment to the drawings to remove reference numerals not mentioned in the description. More specifically, reference numerals 144, 148, 150, 158, 160, 134, 154, 152, and 133 have been removed from Figure 2 and reference numerals 241, 242, 246, 244, 248, 250, 238, 233, 224, 252, 220, 254, 234, 260, 223,

230, 236, and 258 have been removed from Figure 3. Reference numeral 123, however, has not been removed from Figure 2 because paragraph [0021] of the specification makes reference to reference numeral 123.

Accordingly, reconsideration and a withdrawal of the objections are respectfully requested.

IV. Remarks

Claims 1-6 and 9-15 stand rejected. Claims 5-6 and 12-15 are being cancelled. After entering this amendment, claims 1-4 and 9-11 remain pending.

Applicants respectfully request reconsideration of this application in view of the above amendments and the following remarks.

Specification

The specification has been amended to replace the reference characters "140", "141", "142", and "122" with reference characters "240", "241", "242", and "222", respectively to correspond to the drawings.

Claim Rejections - 35 U.S.C § 112

Responsive to the rejections of claims 1-6 and 9-15 under 35 U.S.C. § 112, second paragraph, Applicants have proposed an amendment to the drawings for clarification purposes to more clearly show that the shaft bell 14 and the detachable half shaft assembly 12 are not integral elements. Further, it is well known in the art that the shaft bell is connected to the front or rear axle of the vehicle and provides support to the whole assembly. By the drawings, it is illustrated that shaft bell 14 engages detachable body 20 (at inboard interface 30) to which disc rotor 16 connects (at outboard interface 33). Moreover, the specification clearly mentions that the detachable half shaft assembly 12 is detachable from the shaft bell 14 or the disc rotor 16. "The detachable half shaft assembly 12 is detached from the shaft bell 14 or the disc rotor 16." Specification, paragraph [0018] (emphasis added); see also claims 1 and 9 as filed. Therefore, it is shown that analogous to disc rotor 16, shaft bell 14 is a distinct element from the detachable half shaft assembly 12.

Thus, claims 1-4 and 9-11 are in a condition for allowance and such action is earnestly solicited.

Claim Rejections - 35 U.S.C § 102(b)

Responsive to the rejections of claims 1-4 and 9-11 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,158,124 to Austin ("*Austin*"), *Austin* fails to teach each and every element of the subject matter as claimed in each of claim 1 and 9 of the present application. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. For example, each of claims 1 and 9 recites "a preloaded bearing assembly and a detachable body having an inboard interface at an inboard end and an outboard interface at an outboard end, the inboard interface being configured for connecting to the shaft bell and the outboard interface being configured for connecting to the disc rotor, the detachable body having a bearing receiving portion with a stepped boss and a roll formed face engaging the bearing assembly."

Contrarily, *Austin* fails to teach such limitations. The Examiner asserts that detachable body 14 in *Austin* includes an inboard interface at an inboard end 72 configured to connect to the shaft bell 46. However, the detachable body 14 does not have an inboard interface at an inboard end configured to connect to the shaft bell 46 as disclosed in claims 1 and 9. Conversely, the shaft bell 46 is in engagement with the bearing assembly as disclosed in col. 2, lines 63-65. Reference numeral 72 represents a deformed extension for preloading the bearing assembly in the axial direction rather than an inboard interface at an inboard end configured to connect to the shaft bell 46. See *Austin* col. 3, lines 40-45. Unlike the

invention as recited in claims 1 and 9 where the shaft bell is separated from the bearing assembly by an inboard interface at an inboard end, the bearing assembly in *Austin* is in direct contact with the shaft bell 46 and *Austin* fails to disclose a detachable body having an inboard interface at an inboard end configured to connect to the shaft bell. Hence, *Austin* fails to teach each and every element of the claimed invention. Accordingly, reconsideration of the rejections under 35 U.S.C. § 102(b) and the allowance of claims 1 and 9 are respectfully requested.

Further, since claims 2-4 and 10-11 generally depend from claims 1 and 9, the reasons for allowance of claims 1 and 9 apply as well to the dependent claims.

Claim Rejections - 35 U.S.C § 102(e)

Responsive to the rejections of claims 1-5, 9-12, and 14 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication US 2005/0063628 A1 to Wang et al. ("*Wang*"), *Wang* fails to teach each and every element of the subject matter as claimed in each of claim 1 and 9 of the present application. For example, each of claims 1 and 9 recites "a detachable half shaft assembly of a vehicle wheel end comprising a preloaded bearing assembly and a detachable body having a bearing receiving portion with both a stepped boss and a roll formed face to engage the bearing assembly and maintain the preload thereon when detached from either the shaft bell or the disc rotor."

Contrarily, *Wang* discloses a bearing shaft, which the Examiner refers to as the detachable body, 12 having an inboard end 14 and an outboard end 16 with a wheel hub 18 integrally formed with the detachable body 12. See *Wang* at paragraphs [0031], [0038] and Fig. 2. The wheel hub further includes a brake rotor 44 integrally formed with the wheel hub 18. *Id.* at paragraph [0037] and Fig. 2.

Consequently, the brake rotor 44 of Fig. 2 of *Wang* is an integral part of the detachable body 12. *Id.* at Fig. 2 (note cross-hatching of features 12, 18, and 44). In contrast, each of claims 1 and 9 of the present application recites a detachable body having an “outboard *interface* being configured for *connecting* to the disc rotor.” Clearly, since the detachable body 12, wheel hub 18, and brake rotor 44 are a single integral component, *Wang* cannot disclose an *interface* for connecting to the brake rotor 44.

Further, the Examiner has stated that *Wang* discloses a preloaded bearing assembly with a stepped body and a roll-formed face engaging the bearing assembly at the inboard and outboard ends to maintain the preload tension thereon when the detachable half shaft assembly is detached from either the shaft bell or the disc rotor as recited in claims 1 and 9 of the present application. Contrarily, as shown in Fig. 2 of *Wang*, the referenced bearing shaft 12 comprises a detachable body including a flange portion engaging the outboard inner race 38 of the wheel bearing 26 and a ring (unlabeled) engaging the inboard inner race 36. See *Wang* at paragraphs [0033], [0034] and Fig. 2. The ring of Fig. 2 appears identical to the ring 76 of Fig. 13. The flange 42 is “formed by *swaging* [emphasis added] a portion of the bearing shaft 12.” *Id.* at paragraph [0036]. Therefore, the ring 76 engages the inboard inner race 36 and is held in place by swaging the bearing shaft 12. Hence, *Wang* does not teach a detachable body having a *roll formed* face engaging the bearing assembly at the inboard end.

Applicants respectfully submit that *Wang* does not disclose a detachable half shaft assembly comprising an outboard *interface* for connecting to the brake rotor or a bearing receiving portion with both a stepped boss and a *roll formed* face to

engage the bearing assembly at the inboard end to maintain the preload thereon when detached from either (or both) the shaft bell or the disc rotor.

Accordingly, reconsideration of the rejections under 35 U.S.C. § 102(e) and the allowance of claims 1 and 9 are respectfully requested. Further, since claims 2-4 and 10-11 generally depend from claims 1 and 9, the reasons for allowance of claims 1 and 9 apply as well to the dependent claims.

Claim Rejections - 35 U.S.C § 103(a)

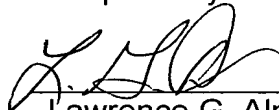
Responsive to the rejections of claims 5-6 and 12-15 under 35 U.S.C. § 103 as being unpatentable over *Austin* in view of U.S. Patent No. 6,450,585 to Kochsiek ("*Kochsiek*"), and the rejections of claims 6, 13 and 15 under 35 U.S.C. § 103 as being unpatentable over *Wang*, Applicants have cancelled claims 5-6 and 12-15. Accordingly, the rejections of claims 5-6 and 12-15 are now moot and should be withdrawn.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

November 13, 2006
Date

Respectfully submitted,



Lawrence G. Almeda (Reg. No. 46,151)

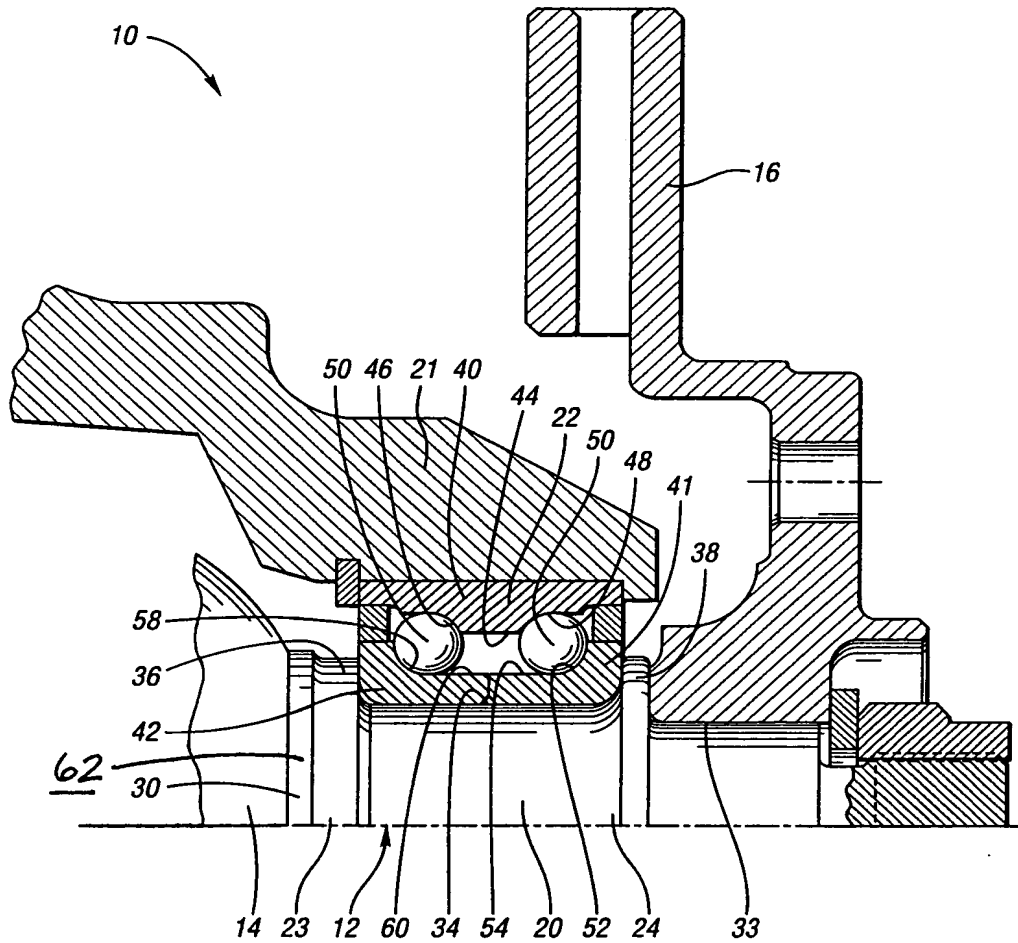


Fig. 1

2/3

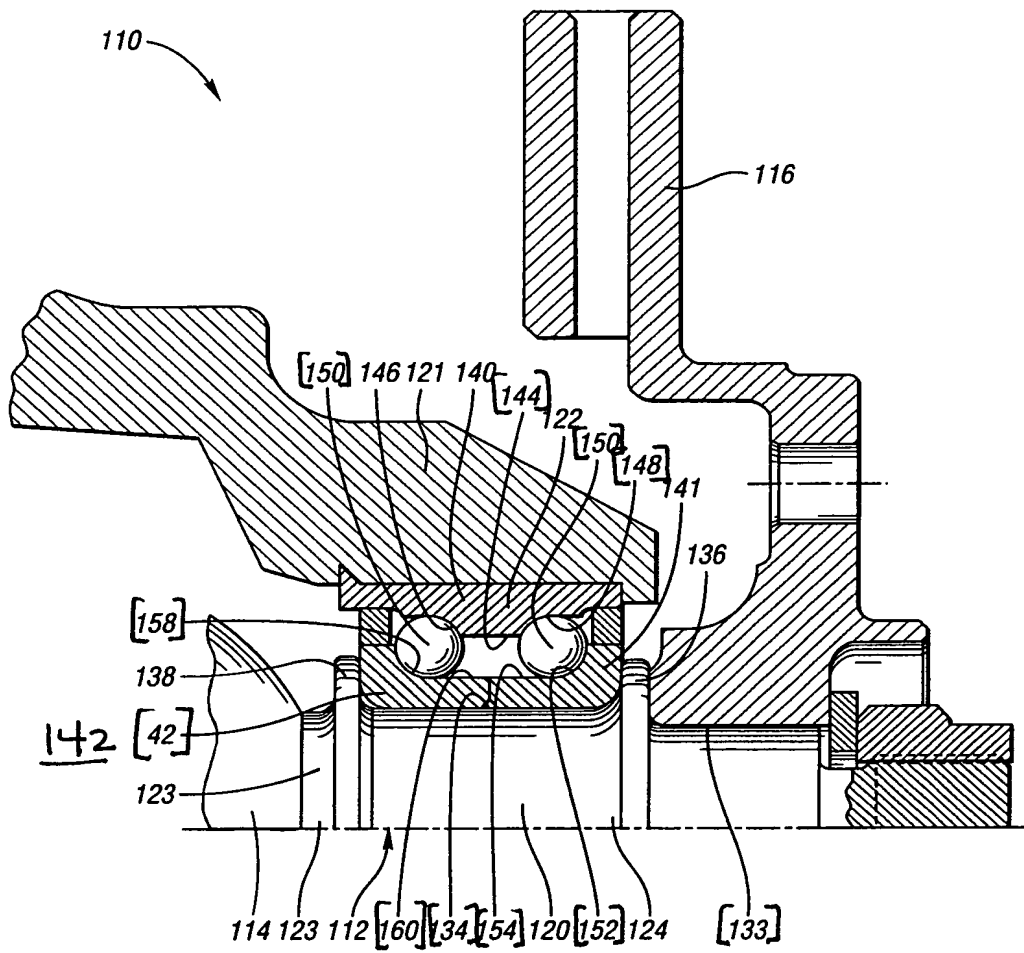


Fig. 2

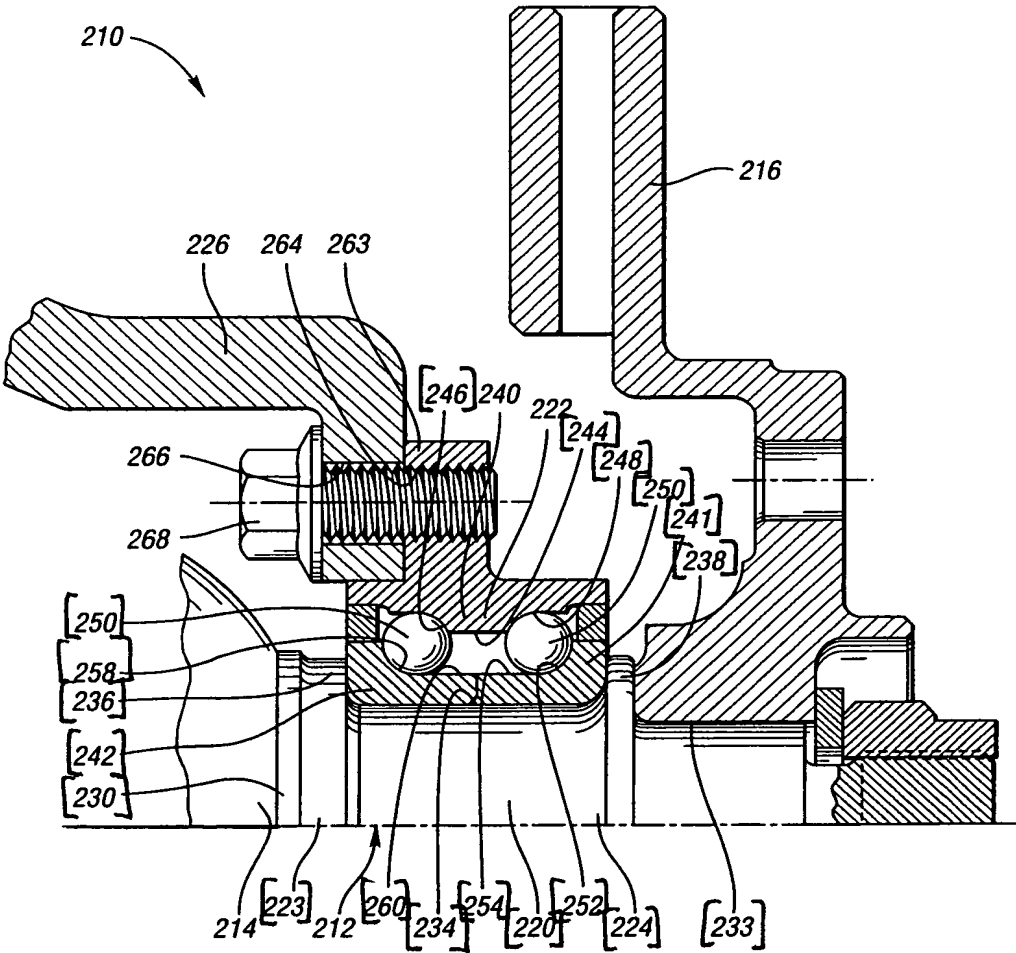


Fig. 3